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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,062	01/30/2004	Toshiaki Aono	Q79570	5486
23373 7590 02/12/2007 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			EXAMINER MARTIN, LAURA E	
			ART UNIT	PAPER NUMBER
			2853	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/12/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No. 10/767,062	Applicant(s) AONO ET AL.	
	Examiner Laura E. Martin	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

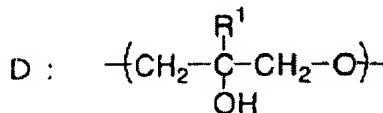
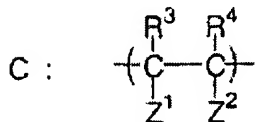
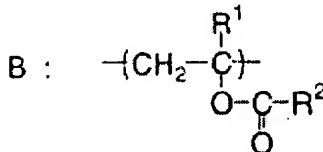
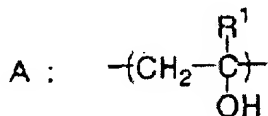
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Shibahara (US 5753422).

As per claims 1 and 22, Shibahara teaches a pigment and a compound represented by the following general formula (I):  $R-X-(Y)_n-H$ , wherein the general formula (I), R represents a hydrophobic group, or a group derived from a hydrophobic polymer; n is an integer from 10 to 3500 (claims 9 and 13); and structural units of repeated Y comprise at least one structural unit represented by A, C, or D, and further comprise 0-40% by mole of structural units represented by B:



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wherein in structural units A through D, R<sup>1</sup> represents a hydrogen atom or an alkyl group having 1 to 6 carbon atoms; R<sup>2</sup> represents a hydrogen atom or an alkyl group having 1 to 10 carbon atoms; R<sup>3</sup> represents a hydrogen atom or a methyl group; R<sup>4</sup> represents a hydrogen atom, -CH<sub>3</sub>, -CH<sub>2</sub>COOH, or an ammonium salt thereof or an alkali metal salt thereof or -CN; Z<sup>1</sup> (X) represents a hydrogen atom, -COOH, or an ammonium salt thereof or alkali metal salt thereof, or -CONH<sub>2</sub>; and Z<sup>2</sup> (Y) represents -COOH or an ammonium salt thereof or alkali metal salt thereof, SO<sub>3</sub>H or an ammonium salt thereof or alkali metal salt thereof, -OSO<sub>3</sub>H or an ammonium salt thereof or alkali metal salt thereof, -CH<sub>2</sub>SO<sub>3</sub>H or an ammonium salt thereof or alkali metal thereof, -CONHC(CH<sub>3</sub>)<sub>2</sub>CH<sub>2</sub>SO<sub>3</sub>H or an ammonium salt thereof or alkali metal salt thereof, or -CONHCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>N<sup>+</sup>(CH<sub>3</sub>)<sub>3</sub>Cl<sup>-</sup> (Shibahara discloses a silver halide column 12, lines 10-68, column 4, lines 1-10, column 19, lines 30-38).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-7, 9-11, 13-15, 17, 18, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibahara (US 5753422) in view of Kubodera (JP 10-095942).

Shibahara discloses the ink taught in claims 1 and 22; however, it does not disclose the hydrophobic group represented by R in general formula (I) is an aliphatic

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group or an aromatic group, alicyclic group, is selected from the group consisting of alkyl, alkenyl, alkynyl, phenyl, and naphthyl groups; the hydrophobic group represented by R in general formula (I) is an alkyl group having 3 to 70 carbon atoms wherein polymerization degree of R in the general formula (I) is from 2 to 500; R is a group derived from at least one hydrophobic polymer selected from the group consisting of polystyrene, polymethacrylic acid ester, polyacrylic acid ester, polyvinyl chloride, and derivatives thereof; the structural unit A is a structural unit derived from vinyl alcohol,  $\alpha$ -methylvinyl alcohol or  $\alpha$ -propylvinyl alcohol; the structural unit B is a structural unit derived from vinyl acetate, vinyl formate, vinyl propionate, or an  $\alpha$ -substitution product thereof; the structural unit C is a structural unit derived from acrylic acid, methacrylic acid, itaconic acid, maleic acid, an ammonium salt thereof or a metal salt thereof; a mass ratio of R to  $(Y)_n$  in general formula (I) is from 0.01 to 2, the mass ratio being calculated using atomic weights of respective atoms in R to  $(Y)_n$ ;  $(Y)_n$  comprises, as structural units thereof, ethylene, propylene, isobutene, acrylonitrile, acrylamide, methacrylamide, N-vinylpyrrolidone, vinyl chloride, or vinyl fluoride [0046]. Kubodera also teaches the ink further comprising water, a dispersing agent, a drying inhibitor (moisturizer).

Kubodera teaches the hydrophobic group represented by R in general formula (I) is an aliphatic group or an aromatic group, alicyclic group, is selected from the group consisting of alkyl, alkenyl, alkynyl, phenyl, and naphthyl groups [0030]. Kubodera also teaches the hydrophobic group represented by R in general formula (I) is an alkyl group

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having 3 to 70 carbon atoms [0031] wherein polymerization degree of R in the general formula (I) is from 2 to 500 [0032]; R is a group derived from at least one hydrophobic polymer selected from the group consisting of polystyrene, polymethacrylic acid ester, polyacrylic acid ester, polyvinyl chloride, and derivatives thereof [0032]. Kubodera also teaches the structural unit A is a structural unit derived from vinyl alcohol,  $\alpha$ -methylvinyl alcohol or  $\alpha$ -propylvinyl alcohol [0043]; the structural unit B is a structural unit derived from vinyl acetate, vinyl formate, vinyl propionate, or an  $\alpha$ -substitution product thereof [0043]; the structural unit C is a structural unit derived from acrylic acid, methacrylic acid, itaconic acid, maleic acid, an ammonium salt thereof or a metal salt thereof [0043]. Kubodera also teaches a mass ratio of R to  $(Y)_n$  in general formula (I) is from 0.01 to 2, the mass ratio being calculated using atomic weights of respective atoms in R to  $(Y)_n$  [0048];  $(Y)_n$  comprises, as structural units thereof, ethylene, propylene, isobutene, acrylonitrile, acrylamide, methacrylamide, N-vinylpyrrolidone, vinyl chloride, or vinyl fluoride [0046]. Kubodera also teaches the ink further comprising water [0073], a dispersing agent [0065], a drying inhibitor (moisturizer) [0056].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink taught by Shibahara with the disclosure of Kubodera in order to create a higher quality ink.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibahara (US 5753422) in view of Aoshima (US 6068963).

Shibahara teaches the ink of claim 1; however it does not teach X representing a bivalent linking group having a hetero bond or the hetero bond in general formula (I) selected from the group consisting of an ether bond, an ester bond, a thioether bond, a thioester bond, a sulfonyl bond, an amide bond, an imide bond, a sulfonamide bond, a urethane bond, a urea bond, and a thiourea bond.

Aoshima teaches a pigment (column 15, lines 46-55) and X representing a bivalent linking group having a hetero bond or the hetero bond in general formula (I) selected from the group consisting of an ether bond, an ester bond, a thioether bond, a thioester bond, a sulfonyl bond, an amide bond, an imide bond, a sulfonamide bond, a urethane bond, a urea bond, and a thiourea bond (column 3, lines 33-51).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink taught by Shibahara with the disclosure of Aoshima in order to provide for a stable ink composition.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibahara (US 5753422), in further view of Leppard et al. (US 6048660).

Shibahara teaches ink of claim 1; however it fails to disclose a structural unit D selected from the group consisting of  $-\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{O}-$ ,  $-\text{CH}_2\text{C}(\text{CH}_3)(\text{OH})\text{CH}_2\text{O}-$ , and  $-\text{CH}_2\text{C}(\text{C}_2\text{H}_5)(\text{OH})\text{CH}_2\text{O}-$ .

Leppard et al. teaches a structural unit D selected from the group consisting of  $-\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{O}-$ ,  $-\text{CH}_2\text{C}(\text{CH}_3)(\text{OH})\text{CH}_2\text{O}-$ , and  $-\text{CH}_2\text{C}(\text{C}_2\text{H}_5)(\text{OH})\text{CH}_2\text{O}-$  (C2, L54).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the ink taught by Shibahara with the disclosure of Leppard et al. in order to provide for a stable ink composition.

Claims 16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibahara (US 5753422) and Kubodera (JP 10-095942, in further view of Aono et al. (JP 07-219113).

Shibahara teach the ink of claim 1 and Kubodera teaches a surface tension adjuster [0060]. However, neither teaches recording ink further comprising a water-soluble organic solvent or a high-boiling water-soluble solvent.

Aono et al. teaches recording ink further comprising a water-soluble organic solvent [0009] and a high-boiling water-soluble solvent [0088].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink taught by Shibahara as modified with the disclosure of Aono et al. in order to make a more stable ink composition.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibahara (US 5753422), in further view of Yamanouchi et al. (US 20020143079).

Shibahara teaches the ink for claim 1; however, it does not disclose a penetration promoter.

Yamanouchi et al. teaches an ink comprising a penetration promoter [0501].



It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the inventions of Shibahara as modified with the disclosure of Yamanouchi et al. in order to prevent bleeding.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibahara (US 5753422), in further view of Nishita (US 20020060727).

Shibahara teaches the ink of claim 1; however, it fails to disclose a surface tension of 20 to 60 mN/m.

Nishita teaches a surface tension of 20 to 60 mN/m [0251].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the inventions of Shibahara as modified with the disclosure of Nishita in order to provide a stronger ink composition.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura E. Martin whose telephone number is (571) 272-2160. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Laura E. Martin

  
2/5/07  
MANISH S. SHAH  
PRIMARY EXAMINER